



DEPARTMENT OF THE NAVY  
NAVAL AIR SYSTEMS COMMAND  
NAVAL AIR SYSTEMS COMMAND HEADQUARTERS  
1421 JEFFERSON DAVIS HWY  
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IN REPLY REFER TO

NAVAIRINST 4790.31  
AIR-433  
30 September 1993

NAVAIR INSTRUCTION 4790.31

From: Commander, Naval Air Systems Command

Subj: NAVAL AVIATION DEPOT ONE-TIME MANUFACTURE OF FLIGHT  
CRITICAL PARTS

Ref: (a) OPNAVINST 4790.2E, The Naval Aviation Maintenance  
Program (NAMP)

Encl: (1) Definitions  
(2) Airworthiness Certification  
(3) Use and Installation Authorization  
(4) Verification of NSN/Purchased Material for Flight  
Critical Components

1. Purpose. To establish policy and assign responsibilities for the one-time depot manufacture of flight critical parts defined in enclosure (1) for the Naval Air Systems Command (NAVAIRSYSCOM).

2. Cancellation. This instruction cancels NAVAIRNOTE 4790 of 12 December 1990.

3. Background. Reference (a) grants Naval Aviation Depots (NAVAVNDEPOT's) authority to manufacture parts required for support of depot production and fleet support. This instruction supplements reference (a) by establishing NAVAIRSYSCOM policy for technical requirements and management responsibilities to ensure the quality and integrity of flight critical parts manufactured by NAVAVNDEPOT's.

4. Policy. Flight critical parts manufactured at NAVAVNDEPOT's must be manufactured with the equivalent or better manufacturing controls and to the same level of quality, as the parts manufactured by the original formally qualified equipment manufacturer. The quality and manufacturing attributes of flight critical parts manufactured at NAVAVNDEPOT's must be traceable through formal documentation from point of origin of raw materials to finished goods and installation (enclosure 2 thru 4) and also must include airworthiness certification. NAVAVNDEPOT management will ensure compliance with the policies and requirements of this instruction. Cognizant Field Activity (CFA) shall determine parts/component flight critical status if not already identified or provided by other documentation or data systems.



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5. Responsibilities. Commanding Officers of NAVAVNDEPOT's. Commanding Officers shall establish formal systems that will provide a clear audit trail of the manufacture, quality control, installation, and certification of depot manufactured flight critical parts. The system will provide:

(1) notification of NAVAIRSYSCOM Cognizant Design Engineer (CDE) and Basic Design Engineering (BDE) Activity of audit trail criteria noted above;

(2) identification of tracking and traceability requirements similar to those of the Buy Our Spares Smart (BOSS) program;

(3) review of the complete manufacturing plan by cognizant engineering, quality, and production personnel to ensure adequacy of technical data package; adequacy of control over critical in-house manufacturing process; adequacy of process documentation, certification, verification, and traceability procedures; and adequacy of the manufacturing plan itself;

(4) approval of Installation and Use authorizations by cognizant depot personnel in the areas of Engineering, Production, and Quality;

(5) establishment of a formal Airworthiness Certification process certified by the Chief Engineer with the concurrence of the Quality Assurance and Production Organization;

(6) complete inspection and testing of all critical characteristics and performance requirements as required by manufacture's drawing and/or directed by CFA's CDE/BDE;

(7) assessment and testing as required of static and fatigue strength and limitations. Testing will be conducted if deemed by CDE/BDE as appropriate for life-limited or fatigue sensitive parts;

(8) Ensure established procedures are followed in the investigation into circumstances surrounding the in-service failure of flight critical parts;

(9) accomplishment of first article testing; and

(10) review depot instructions for consistency and compliance with the requirements of this instruction.

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6. Forms. Enclosures (2) through (4) exemplify locally prepared documentation which might be used by depots in complying with the traceability requirement of this instruction.



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## DEFINITIONS

1. Flight Critical Part. This NAVAIRSYSCOM instruction in conjunction with the definition as defined in the NAVAIRSYSCOM General Specification for Design and Construction of Weapon Systems (SD-24L), defines a "critical part" as:

A part where, "the single point failure of which, during any operating condition, could cause loss of the aircraft or one of its major components, loss of control, unintentional release of, or inability to release, any armament store, failure of weapon installation components, or which may cause significant personnel injury to occupants of the aircraft" during launch recovery, flight, escape, survival or rescue.

2. One-Time Manufacture. A limited quantity of material which is used to fill an immediate requirement to support NAVAVNDEPOT production demands and/or fleet operating forces, to be manufactured locally only after concerted efforts to expedite requirements from other sources have failed.

3. Airworthiness. Able to bear the stress and strains of flight and ground operations.

4. Airworthiness Certification. Is the signed authorization that flight critical parts are manufactured with the equivalent or better manufacturing controls and to the level of quality, as the parts manufactured by the original formally qualified equipment manufacturer, and that installation and use of the particular part does not present a safety hazard to personnel.

5. Airworthiness Inspection. Performed by a Naval Aviation Depot to ensure manufacturing of flight critical parts includes comprehensive inspection together with critical defect corrosion correction/protection and compliance with drawings, and technical directives.

AIRWORTHINESS CERTIFICATION  
OF MANUFACTURED FLIGHT CRITICAL COMPONENT

COMPONENT PART NUMBER \_\_\_\_\_

NOMENCLATURE \_\_\_\_\_

PROCESS PLAN NUMBER \_\_\_\_\_

QUANTITY PRODUCED \_\_\_\_\_ SERIAL NUMBER/SERIAL NUMBERS \_\_\_\_\_

DIRECTOR OF RESOURCES FOR MATERIAL

Director of Resources for Material certifies correctness of  
NSN/purchased flight critical sub-components.

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name CODE \_\_\_\_\_

PRODUCT SUPPORT DEPARTMENT

Product Support Director signature certifies Airworthiness of  
this component/parts.

PRODUCTION HEAD \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name • CODE \_\_\_\_\_

QUALITY HEAD \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name CODE \_\_\_\_\_

CHIEF ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name CODE \_\_\_\_\_

PRODUCT SUPPORT  
DIVISION DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name CODE \_\_\_\_\_

USE AND INSTALLATION AUTHORIZATION  
OF MANUFACTURED FLIGHT CRITICAL COMPONENT

COMPONENT PART NUMBER \_\_\_\_\_

NOMENCLATURE \_\_\_\_\_

DRAWING NUMBER AND REVISION \_\_\_\_\_

DRAWING CAGE \_\_\_\_\_

END ITEM (e.g. T-2, AN/ASQ-81, etc.) \_\_\_\_\_

PROCESS PLAN NUMBER \_\_\_\_\_

PROCESS  
PLANNER \_\_\_\_\_

Print Name

Signature

Date

QUALITY  
ORGANIZATION \_\_\_\_\_

HEAD Print Name

Signature

Date

MANUFACTURING  
HEAD \_\_\_\_\_

Print Name

Signature

Date

SYSTEM  
SAFETY  
ENGINEER \_\_\_\_\_

Print Name

Signature

Date

CHIEF  
ENGINEER \_\_\_\_\_

Print Name

Signature

Date

VERIFICATION OF NSN/PURCHASED MATERIAL  
FOR MANUFACTURED FLIGHT CRITICAL COMPONENT

MATERIAL PART NUMBER \_\_\_\_\_

MATERIAL NAVY STOCK NUMBER \_\_\_\_\_

THE ABOVE MATERIAL IS VERIFIED TO BE ACCURATE AS ORDERED

MATERIAL SHIPPING/RECEIVING SECTION ( )

NIF STORE SECTION ( )

PRODUCTION SHOP SUPPORT CENTER ( )

LAB ANALYSIS REPORT NUMBER \_\_\_\_\_

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name

MATERIAL  
ENGINEER

Print Name

Signature

Date

THE ABOVE MATERIAL IS VERIFIED RECEIVED AS ORDERED AND STORED

AT: \_\_\_\_\_

Location

UNTIL READY FOR ASSEMBLY.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_\_ CODE \_\_\_\_\_

Printed Name